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# THE ARLINGTON PLAN OF GROUPING PUPILS ACCORDING TO ABILITY IN THE ARLINGTON HIGH SCHOOL, ARLINGTON, MASSACHUSETTS

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## THE PLAN

This plan is designed to provide a method for grouping together pupils of about the same ability, as determined by the teachers' observations and the pupils' grades. The grades used for making the determinations at the beginning of the year are the grades of the previous year in the same or a similar type of subject. At the end of the first two months of the year pupils are redistributed among the groups where it seems that they have been misplaced. Changes are made every two months thereafter throughout the year whenever it seems necessary. In practice few changes have been found necessary after the first two months.

There are three classifications in every subject in which the plan is used, rated as (1) honor, (2) medium, and (3) slow. Whenever there are less than three classes in a subject, they are rated the same as if other groups existed, that is, they are called either honor, medium, or slow, according to the character of the work they are doing. In these groups the pupils who vary from the type of the group are treated according to their individual variations, as they would necessarily be in a more heterogeneous class where no attempt is made to select the groups on a basis of individual ability, but where a definite attempt *is* made to treat the pupils according to their individual capacities. The plan is applied to the classes in mathematics, languages, history, commercial subjects, and sciences. It is not attempted in the laboratory classes, such as mechanic arts, physics, chemistry, household arts, bookkeeping, drawing, etc., where the instruction is largely individual. It is applied in some of the latter classes where they receive group instruction.

The grades given to the pupils represent actual achievement within the limits in which they occur. Since January, 1916, a subscript has been given with the grade to indicate the group in which it was given; as, A<sub>1</sub> means A in an honor group, D<sub>3</sub> means D in a slow group, etc. The grades represent the following values: A, 90-100 per cent, inclusive (excellent work); B, 80-89 per cent, inclusive (good work); C, 70-79 per cent, inclusive (fair, passing work); D, 67-69 per cent, inclusive (doubtful, passing work); and E, less than 67 per cent, failure.

The honor groups do more work in a given subject than the medium and slow groups. The latter two are expected to cover at least the minimum requirement for promotion. The work done by the medium and slow groups is about the same as that required of a regular class, based on traditional methods of selection. In order to earn promotion in any group a pupil must have an average better than D. Marks below B are seldom found in the honor groups and seldom above C in the slow groups. No college certificate is given in a subject in which the average for the year is below B<sub>2</sub>, and a certificate is not guaranteed even with this average.

The method of instruction is varied to suit the caliber of the groups. In the first groups the assignments are longer, the work in the class is more rapid, less emphasis is given to instruction and drill, the instruction is less formal, the classes are larger, and the classroom work is more class work than individual. In the lowest groups, which are smaller than the others, the work is as largely individual as the size of the classes will permit.

The mechanical part of segregation commences in April for the following year, after the registration cards are filled out by the pupils, approved by the parent, and teacher adviser, and passed to the office for the principal's approval. After determining the number of classes in each subject, the pupils' names by years (i.e., Freshman, Sophomore, etc.), arranged alphabetically, are written on long slips of paper ruled as follows: first column, the pupils' names followed by several half-inch columns for subjects. This makes a small space about one-half inch square after each pupil's name and under each subject that he takes. A small x mark is placed after each pupil's name in each square under subjects taken

by him. These long slips are then sent to every teacher who has had the pupil during the past year in the same or a similar subject. The teacher then marks 1, 2, or 3 in the square opposite the pupil's name and in the column belonging to his subject to indicate the group in which the teacher thinks the pupil should be placed. The slips are then returned to the office. Then comes the most difficult task of all, viz., arranging the program of recitations for the entire school, giving each teacher his special subject, avoiding conflicts of subjects, and reducing to a minimum the possibility of conflicts in grouping pupils according to ability.

It is important to note that pupils are divided according to ability, by subjects, for while it is generally true that pupils who are in the first group in one subject are in the first group in most subjects, it does not always follow; e.g., a pupil may be in the first (honor) group in Latin and at the same time in the third (lowest) group in geometry and in one of the medium groups in English. A pupil, to remain in an honor group in any subject, must maintain a mark of A or B, though he may be required to remain in an honor group if the teacher is reasonably certain in his judgment that the pupil's ability is commensurate with the demands of the group. When the circumstances seem to justify it, however, a pupil may be put "on trial" in any honor group in which he happens to be; if he should fall below passing in any subject in any group it is with the understanding that he may be demoted from his honor group if he is not able to pass all his subjects in his respective groups, the idea being that it is better for the pupil to put less time and energy on the one subject and more on the others with the hope of passing in some group in all subjects. This arrangement tends to prevent overreaching or undue concentration on one subject at the expense of others that are equally important.

Seventy points are required for graduation (a point is equivalent to one prepared recitation per week for 40 weeks). No pupil can continue taking over 23 points a year unless he maintains a standing of A or B (80 per cent, or better) in all subjects. Every year some pupils are graduated who have completed the four-year course in three years. Pupils are not allowed to sacrifice quality of work for variety or quantity.

## THE AIM OF THE ARLINGTON PLAN

The aim of the Arlington plan is to meet the situation referred to by Dr. Monroe,<sup>1</sup> who says:

It is obviously true that the American schools, in emphasizing the democratic purpose, have minimized the selective function of the secondary school. *The tendency in our own schools is to devote more attention to the sub-normal or to the mediocre than to the super-normal.* It would be entirely possible to preserve both the democratic and the selective functions of the secondary school if the false democracy which demands uniform treatment for all were replaced by the practice of *differentiating students according to their interests, subject-matter according to its social significance for the student taking it, and methods according to the individual abilities of the students.*

The differentiation of the courses of study into technical, college, general, commercial, and household arts courses meets the demand for differentiation of the students according to their interests, and of the subject-matter according to its social significance for the student taking it. This is a common practice now among secondary schools. It is the third factor referred to by Dr. Monroe, however, that the Arlington plan is especially designed to meet, viz., *the differentiation of method according to the individual abilities of the students.* The differentiation in method is perforce accompanied by some differentiation in the quantity and quality of the subject-matter taught. The Arlington plan, therefore, aims to *provide for the intellectual wants of pupils according to their ability.*

## DISCUSSION OF THE CLAIMS MADE FOR THE ARLINGTON PLAN

On the basis of six years' operation of the plan in the Arlington High School, together with a thorough analysis of the grades given in all subjects for two years by two-month periods, and a comparison of the grades of one year with the grades of the same year in a neighboring high school, the claims for, and objections against, the plan are either refuted or justified as follows:

1. *It stimulates most pupils to work.*—The stimulus is certainly present for the first groups and for those who have a chance of getting into the first groups; it is active among those in the lowest groups who, experiencing a sensation of progress, are encouraged

<sup>1</sup> P. Monroe, *Principles of Secondary Education*, p. 9. Italics not in the original.

to greater effort. There are some in the middle group, however, who seem content to remain where they are, satisfied with the minimum passing mark and lacking the necessary ambition either to get into the first group or to make a better grade in the middle group. It is doubtful whether these latter pupils would be stimulated to maximum effort under any other system; it is certain that they are not under the Arlington plan. The sweeping claim that all pupils are stimulated to greater effort is not justified but the claim that the Arlington plan provides an added stimulus over the traditional method of grouping pupils has been unquestionably established.

*2. The temptation to teachers to concentrate a recitation among the brighter pupils of the class is removed.*—To a certain extent this is true. The extent is measured by the homogeneity of the group. It would not be a virtue of the plan if all of this temptation were removed, for, if there were no variation in mentality among the individuals of the class, the stimulus afforded by the brighter pupils would be lost, the opportunity for developing leaders would be practically non-existent, and many valuable factors of teaching practice would be handicapped. The matter of this temptation to have the brighter pupils do all the reciting lies largely with the individual teacher. It is certainly true that less damage is done by this practice under the Arlington plan than in most high schools, because the recitations of the brighter pupils of a group are practically always within the scope of the ability of the other members of the group. This is not true in groups where the variation in ability is great. It would then be more justly claimed that less damage is possible by this tendency on the part of teachers to concentrate the recitation among the brighter pupils in the Arlington plan where the differentiation within the group is less, than in the groups where the differentiation of ability is greater.

*3. The net amount of work is greater than under other plans.*—The first groups do more than the work required for promotion and the other groups do as much as is required for promotion or graduation in the ten high schools around Boston with which the Arlington School has been compared. A comparison of the courses of study of ten large high schools in the environs of Boston with the Arlington

High School shows that the Arlington School is offering about the same subjects and covering as much of them as the others. As a matter of interest it was noted that in some courses, especially the college and technical, the work was almost identical among these schools. As over 50 per cent of the graduates of the Arlington High School go to college, it is evident that a large part of the work is quite definitely determined. The school has the college certificate privilege wherever it is granted in New England. To the extent in which the work of the first groups is more than that of the others and to the extent in which elimination and failure is reduced (as will be discussed later) may be measured the greater amount of work accomplished under the Arlington plan.

TABLE I

## COMPARISON OF PUPILS FAILED AND ELIMINATED IN SEVERAL GROUPS OF SUBJECTS

	English	Latin	Science	History	Mathematics	Commercial Subjects	German	French	Average
Failed:									
Illinois schools*	8.5	9.3	11.1	9.3	15.3	9.6	7.8	5.5	10.1
Arlington.....	5.2	4.9	5.0	8.4	10.6	8.6	5.6	6.1	5.2
Eliminated:†									
Illinois schools*	7.9	10.2	12.6	11.8	13.4	10.8	10.1	7.7	10.6
Arlington.....	7.8	9.0	8.2	12.6	15.7	8.7	3.1	12.5	11.8
Totals:									
Illinois schools*	16.4	19.5	23.7	21.1	28.7	20.4	17.9	13.2	20.7
Arlington.....	13.0	13.9	13.2	21.0	26.3	17.3	8.7	18.6	17.0

\* *School Review*, XXI, No. 6, 1913, 415.

† Eliminated is interpreted to mean those who left school or dropped a subject for any reason.

4. *Fewer failures are the result of this plan.*—A careful search of the literature available reveals but little of statistical value. Table I represents a comparison between the Arlington High School, and a group of high schools in Illinois. It represents those who failed and those who were eliminated in one year.

Apparently the figures given in Table I show that the total elimination and failure is less under the Arlington plan than under the ordinary plan. The elimination is apparently greater in the Arlington School by a little over 1 per cent, but the failures are about one-half those in the Illinois schools. The low number of

failures in Arlington is partly accounted for by a rule that requires a pupil to drop a subject after failing in it four consecutive months. While he is actually a failure, he is counted as eliminated. This would have a tendency to increase the number of those eliminated and reduce the number of failures at the end of the year. The relative values of these factors as between the two sets of statistics is not very significant, but the total failure and elimination seems to argue in favor of the Arlington plan.

TABLE II

COMPARISON OF PUPILS FAILED IN PATERSON AND DENVER HIGH SCHOOLS WITH  
PUPILS FAILED *and Eliminated* IN ARLINGTON HIGH SCHOOL

	English	Ancient Language	Modern Language	History	Mathematics	Commercial Subjects	Science	Average
Paterson*	14.0	15.9	22.8	11.5	23.6	12.4	18.8	16.1
Denver†	13.8	16.5	15.2	14.5	21.4	10.5	13.9	15.6
Arlington.....	13.0	13.9	15.1	21.0	26.3	17.3	13.2	17.0

\* *Report of School Department, 1914*, Paterson, New Jersey.

† *Report of School Department, 1913*, Denver, Colorado.

Table II represents the total elimination and failure in Arlington for one year, in percentages, as compared with the failures at the end of a year's work in the Paterson and Denver high schools, in which two cities no mention is made of those eliminated. It will be seen that Arlington has a lower total percentage *failure and elimination* than either of these cities have of failure alone, in four out of seven groups of subjects. In the total average, Arlington is within 1.5 per cent of Denver and 1 per cent of Paterson. It seems reasonable to assume that the normal amount of those eliminated would raise the figures for Paterson and Denver to a point where the comparison would be very favorable for Arlington. As far then as statistical comparison of this matter is possible, the indications seem to be that the Arlington plan tends to reduce the total failure and elimination.

5. *The ratio of improvement in this plan tends to be greater than in other methods of grouping.*—The data on this point are taken from a study of the Arlington plan made by Mr. Richard P. Bonney in 1915, in which he compared a neighboring school with the Arling-

ton High School, making his comparison chiefly on the basis of the ratio of improvement of the several studies. Referring to the Arlington School, he says: "The average ratio of improvement for the five studies on the differentiated plan was 0.91 while the ratio for the studies not under this plan was 0.38. A noticeable difference existed within the school in favor of the studies operated on the Arlington plan." He observed a similar though not so great, difference between the same groups of studies in the other school investigated, in which none were on the Arlington plan. Owing to the many factors that entered into this study, due chiefly to the difference in the size of the schools and a different system of grading, it is not possible to accept this comparison as final. It seemed to indicate that the Arlington plan was better for the highest and lowest groups, but not so good as the *laissez faire* method for the middle group. The claim that the ratio of improvement in the Arlington plan is greater than in other plans has yet to be substantiated. It is doubtful if it ever can be proved conclusively, as so many factors other than the grouping will affect this ratio.

6. *The possibilities of discovering unusual ability of pupils for special subjects are greatly increased.*—Under the Arlington plan it is necessary for the teachers to keep constantly in mind the individual differences and characteristics of the pupils, because they must report on them in order to keep the groups properly distributed. Under the usual *laissez faire* method the teachers are required to give no definite attention to these matters, and it is left to the individual teacher to discover a pupil's special qualities and to encourage them at his own initiative outside of the regular school program. Some teachers have little capacity or inclination for this "missionary work," and the pupils suffer accordingly. Under the Arlington plan the "missionary work" becomes a part of the regular school organization, and the teacher who would not find it possible to consider the individual variations in his class under the traditional method of grouping is sufficiently guided and stimulated by the administration of the Arlington plan, not only to aid efficiently in determining the capabilities of pupils, but finds his work lightened by the better organization in his classes.

Under this same heading it is to be observed that the pupils themselves are encouraged to self-analysis, and many conferences are held between teachers and students, the aim of which is to help the pupil to "discover" himself. A system of pupil advisers has been developed to supplement this feature of the plan. The adviser, the teacher of the subject in which the pupil is to be grouped, the pupil himself, and often the pupil's parents are involved in the process of grouping the pupil according to his ability. With these organized attempts to "discover" him it is certain that the opportunities of getting definite, reliable results are greatly in excess of the chances under a *laissez faire* method. It is a matter of a definite method versus no method at all.

It has been objected in this connection that the pupils are not qualified to pass judgment on their own abilities. The Arlington plan has provided means for directing the pupil's judgment and training it with the aid of his teachers. No scheme ever developed will prevent pupils from passing judgment on their own qualifications. It would be unfortunate if such a scheme existed. Since pupils will estimate their own qualifications, and since reliable knowledge on this matter is essential to the full measure of success in life, it may be argued that a plan that encourages introspection on the part of the pupils and attempts to guide them in the exercise of this function is more nearly meeting the demands of a well-rounded training than any scheme which omits it.

7. *It stimulates an increase of interest in the school on the part of parents, friends, and pupils.*—The attention given to the analysis of the capabilities of pupils in Arlington has had the effect of bringing the parents of the pupils and other citizens of the town in close touch with the school. Parents know that their children are being grouped on a basis of ability, and the majority of parents are co-operating with the school and accepting the judgment of the school, with gratitude. A small but negligible number have felt wronged when their children were classified with the lowest groups. Whether the interest on the part of parents is sympathetic or not, the essential fact to be noted is that interest is aroused. After one or two conferences unsympathetic interest usually disappears.

The citizens of the town, particularly employers of young people, have come to regard the school as a place where they can get exact and reliable information concerning prospective employees. This is, of course, true of most secondary schools to a certain extent, but it has developed rapidly in Arlington under the present grouping system. The process of getting the information necessary for grouping pupils has brought out many other facts of value concerning the pupils and has led to a special form of permanent record card which not only contains the attendance and scholarship records, but makes a yearly memorandum of the pupils' honesty, neatness, punctuality, reliability, bent, future plans, home conditions, special interests, health, and miscellaneous data. This record is made out yearly by the pupils' adviser, with the aid of other teachers. It may be said that the Arlington plan tends to make the school office a clearing-house for all information that will lead to the most reliable analysis, instruction, and placement of each of its pupils.

8. *The initiative of pupils is increased.*—In addition to the stimulus to work as discussed in subhead 1 of this section, there is developed an increase in initiative in the lowest groups that is of inestimable value, particularly to the pupils who are lowest in ability. Pupils who find it embarrassing, if not impossible, to recite in a middle or high group, feel little or no discomfort in reciting in a group where they realize that the danger of ridicule (real or imagined), because of the superior knowledge of other members of the class, is eliminated. Children of secondary-school age are supersensitive to ridicule, and many a pupil has been seriously handicapped because of untimely criticism by a teacher or, what may be even more effective, the thoughtless ridicule of a classmate. In all the groups under the Arlington plan there seems to be a freedom of student participation in the exercises of the classroom, which, while it may not have been directly the result of the Arlington plan alone, at least is encouraged and developed by it.

9. *The percentage of elimination is reduced.*—According to the statistics on p. 32, it would appear that Arlington compared unfavorably with other secondary schools in the matter of elimination. It was explained that a special rule, peculiar to Arlington,

would tend to increase the number of eliminations by subjects. The fact that a failure for four consecutive months makes it necessary for a pupil to drop a subject means a large percentage of subject elimination. Table III presents the percentages of elimination (those who left school for any cause) for each class in the Arlington High School since the class that entered in 1903 and graduated in 1907. The table is arranged in groups of three years each. The first three years represent the rate of elimination before the present grouping plan was adopted. The other three-year groups show the rates of elimination and graduation since the plan has been in

TABLE III  
PERCENTAGE OF GRADUATION AND ELIMINATION IN ARLINGTON HIGH SCHOOL

When Entered	When Graduated	Number Entering	Number Graduating	Percentage Graduated	Percentage Eliminated	Three-Year Period
1903.....	1907	65	16	24.6	75.4	Percentage graduated, 33.5 Percentage eliminated, 66.5
1904.....	1908	72	29	40.3	59.7	
1905.....	1909	72	25	34.7	65.3	
1906.....	1910	82	35	42.9	57.1	Percentage graduated, 50.5 Percentage eliminated, 49.5
1907.....	1911	86	47	54.3	45.7	
1908.....	1912	113	60	53.1	46.9	
1909.....	1913	112	68	60.7	39.3	Percentage graduated, 58.8 Percentage eliminated, 41.2
1910.....	1914	114	78	68.4	31.6	
1911.....	1915	175	90	51.4	48.6	

force. A steady increase in the percentage of each class to remain and graduate, and a corresponding decrease in the percentages eliminated characterize the figures. In the three years immediately preceding the adoption of the Arlington plan, a variation in the ratio of the percentage is noticeable. No explanation for this is available. Since 1910, however, there has been a steady increase in the percentage graduating, with two exceptions—a decrease of 1.2 per cent in 1912 and of 17 per cent in 1915. There seems to be no explanation for the drop in 1915, except that the class contained an unusual number of poor-quality students who were near the dropping-out line, and during its third and fourth years was

greatly handicapped by an overcrowded school and by a two-session plan which divided the school day to accommodate the entire enrolment.

Table IV presents a comparison which seems to argue that the Arlington plan does tend to reduce the percentage of elimination. It is difficult to find any other way to explain the decrease in elimination in Arlington since the plan was adopted. Indeed, there seem to be some reasons why the trend should be in the other direction. During the past few years the town has grown from a wealthy, steady, independent, conservative town of few changes, to a Boston suburb influenced by the atmosphere of the metropolitan district,

TABLE IV

PERCENTAGES OF PUPILS OF ENTERING CLASSES ELIMINATED AND GRADUATED IN REGULAR FOUR-YEAR HIGH-SCHOOL COURSE, ACCORDING TO DR. E. L. THORNDIKE, DR. L. P. AYRES, AND DR. G. D. STRAYER, COMPARED WITH ARLINGTON DURING THE THREE YEARS BEFORE, AND SIX YEARS FOLLOWING, THE ADOPTION OF THE "ARLINGTON PLAN"

	DISTRIBUTION OF PUPILS IN RECITATION GROUPS WITHOUT REFERENCE TO INDIVIDUAL ABILITY				DISTRIBUTION IN CLASSES ACCORDING TO ABILITY OF PUPILS	
	Thorndike	Ayres	Strayer	Arlington 1907-9	Arlington 1910-11	Arlington 1912-15
Eliminated ..	70.0	75.0	67.0	66.5	49.5	41.2
Graduated ..	30.0	25.0	33.0	33.5	50.5	58.8
	100.0	100.0	100.0	100.0	100.0	100.0

subject to many residence changes accompanied by an influx of people of moderate means who are just able to send their children to high school, among whom the percentage of elimination would tend to be high.

Until the current year the program has been enriched only with the commercial course to appeal to any special aptitudes or interests of the pupils or to those who see a vocational opportunity in the high school. The influx of new residents has added to the enrolment, to a certain extent, after the first school year, but not enough to affect the relative values of the above percentages.

The figures presented by Thorndike, Strayer, and Ayres are estimates based on a wide field of observation covering many high

schools, and represent what may be called an average condition. Evidently the situation in Arlington six years ago was about the average, but since that time there has been a tremendous change, elimination dropping from 66.5 for the three years 1907-9 to 41.2 per cent for the three years 1913-15, and graduation showing a corresponding increase. While undoubtedly many factors that are undeterminable at the present time are more or less responsible for this change, it is reasonable to suppose, in view of the figures presented from the other sources, that the plan of grouping pupils according to ability has had its influence.

#### DISCUSSION OF THE OBJECTIONS MADE AGAINST THE ARLINGTON PLAN<sup>1</sup>

1. *There is danger of overreaching in the crowding of bright pupils.*—This objection is more imaginary than real. It is hardly adaptable to statistical verification or denial, but the report of Mr. Fred C. Mitchell, who introduced the plan at the Arlington High School and continued it there for six years, is to the effect that this overreaching of pupils, or the attempting to do more than they are able, is no more of a danger under this plan than under any other, provided there is reasonable watchfulness on the part of the teacher, and that the school is reasonably solicitous concerning the mental hygiene of its students. That additional stimulus is given to the ambition of the pupils is evident, and in the case of the few already ambitious the extra stimulus probably would result in overreaching if there were no teachers effectively to guide the ambitious. It has been my own observation in Arlington that, owing to the fact that the attention of the teacher is officially, and more or less constantly, directed to the matter of the pupils' ability, the matter of the pupil working within his limits receives more and better attention than it otherwise would receive at the hands of the average teacher.

2. *There is danger of reducing the work of the lowest division to a point where progress is too slow and stagnation sets in.*—This is a

<sup>1</sup> These objections were raised by members of the Massachusetts High School Masters' Club at a meeting in Boston, Massachusetts, where the Arlington plan was presented for discussion by Mr. Fred C. Mitchell.

matter the control of which is not inherently bound up in the Arlington plan, but it is a matter of administrative efficiency such as it would be in any system. If a group were so slow as not to be able to do the work required by the course of study when separated in smaller groups and instructed by a method more nearly fitted to their needs than they would be in the usual secondary-school group, then it is obviously true that the pupils are attempting work that is clearly beyond them, and they would have to do as pupils do who fail under other circumstances. The Arlington plan does not permit any group to do work of a quality or quantity less than that required as the standard for the school. Those in the third group in any subject must do as well in order to pass as those in the middle group, but not as well as those in the first group. The difference between the middle and the lowest group lies in the difference of the method of instruction and in the size of the class. Under these favorable conditions adapted to the needs of the slower pupils, most of them are enabled to reach the standard required for passing. Stagnation is less possible in the Arlington plan than in the usual distribution of pupils because the work is less often so far beyond a pupil that progress is impossible.

3. *Dull pupils are deprived of the stimulus of contact with keener minds.*—If the groups were absolutely homogeneous, this would be a justifiable criticism, but they are not. They are less heterogeneous than high-school classes usually are, but they are not so homogeneous that there are no individual differences within the group. There are always those at the top and those at the bottom of the groups, no matter how homogeneous they become. It has been my observation that under the Arlington plan there is an added stimulus to that afforded by the presence of the keener intellects within the groups, viz., the stimulus afforded by the chance to make a place in a higher group.

4. *Frequent transfers disturb the organization of the school.*—This would be true if the transfers were frequent, but it is found that once the plan has been thoroughly established, frequent transfers are not necessary. The organization of the school is disturbed at the end of the first two-month period when most of the transfers occur, but I am inclined to believe that the increased effectiveness

of the organization after the transfers are arranged justifies the disturbance while they are being made. Occasional changes are made throughout the year, but not enough to cause any disturbance noticeable in the organization of the school. A careful grouping at the start assures a fairly constant distribution. Pupils do not change much in ability, though our judgment of their ability is not always accurate. It is usually a mistake in judging a pupil's ability that makes a change from one group to another necessary. Pupils rarely, if ever, change from a higher to a lower group because of a real change in ability, but they often change from a lower to a higher group apparently because of a change in ability, but probably because of a change in ambition or effort.

5. *Transfers to lower groups tend to discourage those transferred.*—This objection seems to be substantiated by my observation. Pupils who have been transferred to lower groups have shown discouragement and disappointment when changed. Usually this discouragement has been but temporary, and has been easily dissipated by an explanation of the advantages of working in a group within one's limitations. It is my own conviction that the discouragement occasioned by these transfers is less damaging than the discouragement which accompanies the knowledge on the part of a pupil that he is in a group that is doing work beyond his powers and which is progressing at a rate faster than he can go. The element of discouragement to the conscientious, but incapable, student is present in any system of promotion or grading. The total amount of discouragement, if it is to be measured by failure and elimination, is less in the Arlington plan than in the plans of grouping that are in common use.

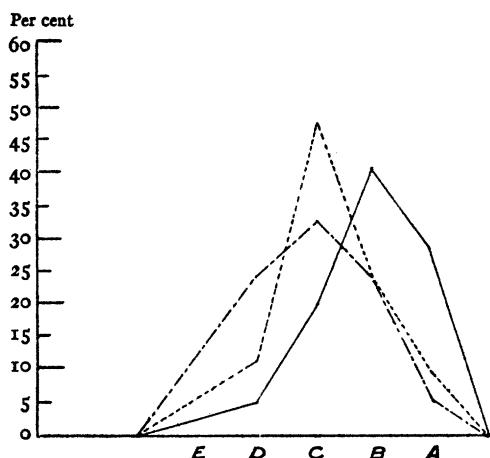
6. *Pupils in lower groups tend to underestimate themselves.*—This tendency has not yet become apparent in the Arlington High School. It is a difficult matter to determine. Little is known of just what the average high school pupil does think of himself. It has been said waggishly, but with a tendency to truth which seems to be self-evident, that "you can always tell a high-school pupil—but you can't tell him much." Possibly any influence that encourages pupils to underestimate themselves may be desirable. This much, however, has been observed at the Arlington High School,

that pupils in the lower groups apparently have a more nearly exact estimate of themselves than pupils in the other groups. There is a tendency to overestimation in the upper groups rather than a tendency to underestimation in the lower classes. This is the real criticism, if any of this character is valid. I consider it unimportant, however; it is one of the evidences of youth and has been observed even in Sophomores at college.

7. *It establishes a "caste" system which is undemocratic.*—As a matter of fact, pupils do not select their friends on a basis of scholarship. There is no evidence in the Arlington High School that the pupils of any one group have any different feelings toward the pupils of other groups than they have among themselves. The incidental associations in the classrooms naturally contribute their share toward the making of friendships, and in so far as these associations are the result of the plan of grouping, the plan is responsible. Pupils are likely to make their friends among those who are congenial among their classmates. As their classmates are selected by a standard of ability, it is true that the friendship groups under the Arlington plan would tend to show a uniformity as to mental ability, just as in other systems they would tend to show a uniformity based on the particular method of selection. The "extra curricula" activities of the school, however, are fully as varied as those in the average large high school, and in all the student elections there has never appeared any evidence of the influence of any particular scholarship group. The leaders in scholarship are not always the leaders in student life. Evidence of this fact is revealed by the necessity of a rule which requires the faculty approval of all elections made by the students in all student activities. This rule was found necessary owing to the tendency of the pupils to elect popular, but otherwise incompetent, pupils to positions of responsibility in student activities.

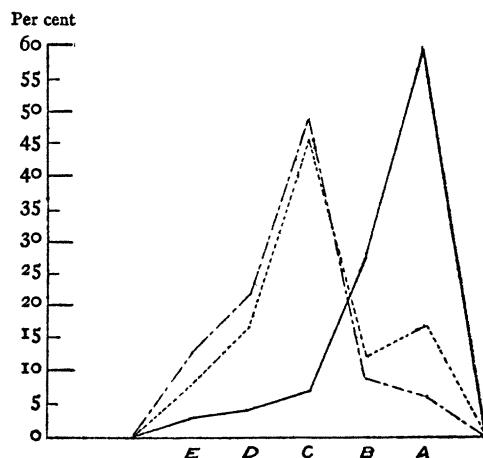
8. *The groups are so homogeneous that leaders in them are not developed.*—This objection is adequately refuted by the conditions in the Arlington High School. The homogeneity of the group as to mental ability is a safeguard against the dangers of leadership too highly developed, in which the leaders get so far beyond the rest of the class that all hope of ever doing as well as the leaders is

lost. This danger is minimized under the Arlington plan, and the hope of catching the leaders is always a stimulus to other members of the group. It would be quite impossible to select a group of about twenty pupils so homogeneous that there would not be some individuals in it who would stand out as the head of the group in mental ability. As shown under subhead 2, p. 30, the stimulus afforded by the greater homogeneity of these groups develops rather than retards the factors that stimulate leadership and keep



1. SECOND YEAR FRENCH

- First Group
- - - Second Group
- · - Third Group



2. FIRST YEAR ALGEBRA

- First Group
- - - Second Group
- · - Third Group

DIAGRAMS 1 AND 2.—Graphs showing the relative percentages of A's, B's, C's, D's, and E's in different groups in French and algebra.

NOTE.—A is the highest mark in scholarship, E the lowest.

the process active. The graphs accompanying this section indicate, not only sufficient heterogeneity within the group, but also the possibilities of active competition for leadership. The graphs represent the actual distribution in the three groups in algebra and French, based on the grades received during the report period of January to February, 1916. The distribution presented is typical of the situation in all subjects where grouping according to mental ability is practiced.

9. *It is expensive because of the increased number of teachers needed.*—The matter of expense is a relative factor, and if extra teachers were needed, the increased efficiency, the low percentage of failures, and the low percentage of elimination would serve to show that probably the net cost per unit was less than under the traditional plans of grouping. As a matter of fact, however, no increase in teachers has been found to be necessary for this plan in the Arlington High School, which has an enrolment of about 670 pupils. There are 25 regular teachers on the staff which makes a teacher-pupil ratio of 1 to 26. The program of studies is reasonably diversified, embracing the following subjects: English, 4 years; Latin, 4 years; French, 3 years; German, 3 years; algebra, 2 years; geometry (plane), 1 year; geometry (solid), 1 year; history (American, ancient, English, Roman, Greek, modern), each, 1 year; physics, 1 year; chemistry, 1 year; biology, 1 year; physical geography, 1 year; typewriting, 3 years; stenography, 3 years; commercial law, 1 year; commercial geography, 1 year; commercial arithmetic and penmanship, 1 year; economics, 1 year; bookkeeping, 2 years; drawing (freehand), 4 years; drawing (mechanical), 2 years; manual training, 4 years; music, 4 years; and physical training, 4 years. The distribution of pupils among the classes by subjects is as follows:

There are 8 subjects in which the classes contain 13 to 19 pupils	
" " 9 "	20 to 24 "
" " 7 "	25 to 29 "
" " 3 "	30 to 34 "
" " 4 "	35 to 40 "

There is evidently no support for the contention that the classes are demanding the services of extra teachers or that they are too small in size to be economical; further, there seems to be nothing inherent in the Arlington plan that would increase either the net or the gross cost of teaching or administration.

10. *It is impossible to develop the program completely because of conflicts.*—It would be a difficult matter for anyone to say what is or what is not possible with a high-school program. Those who have had experience with them realize how intricate and yet how elastic they may be. Mr. Fred C. Mitchell, during the sixth year

the plan was in operation while he was principal of the Arlington High School, was able to place all the pupils in the groups where they belonged in all subjects operating under his plan, except in 29 instances. As there were 580 pupils in the school at that time, and only 29 of them were not in their proper groups, it would seem that the plan was in full operation with the exception of 5 per cent. My experience leads me to believe that this percentage of conflicts could be lowered but little in any system of selection. This small number of pupils not in their proper groups was provided for in such groups as their programs would permit, the teacher giving them some extra individual attention. Since September, 1915, all the changes required were made but about 16 per cent. This large difference is accounted for by the moving of the school into a new building, an unexpected increase in the enrolment, the introduction of two new courses requiring double periods, a change in the principalship, and the fact that the program had to be made out by one who was unfamiliar with the pupils. When the program for the next year is made out, much data will be available that will make it possible to prepare a more elastic program.

Under the head of the program difficulties comes the following contingency which must be provided for by special arrangement. In second-year German there may be 50 pupils, enough for three groups. When these pupils come to third-year German the following year, enough may have dropped out to leave about 36 or 40 pupils, still enough for two groups or possibly three. When they come to fourth-year German in the next year there may be but 24 to 28 in the class, enough for one large group, but too few to be divided into two or three groups, especially when 20 of them may belong to the first group. It is then impossible to apply the segregated grouping-system absolutely, and the pupils must be handled as one class of two groups, giving the better group more to do in proportion to the less efficient. A resourceful teacher will be able to meet such a situation and carry out the purpose of the plan successfully. This variation of the plan is in operation in three classes in Arlington.

When the plan of grouping pupils according to ability is first put into operation in a school that has used another system of

grouping, the program difficulties are colossal, and I am prepared to say that there is little prospect of getting more than 70 to 80 per cent of the pupils into the divisions where they belong. Under any plan of grouping it is difficult enough to avoid conflicts and keep the classes of nearly uniform size; when you add to the difficulties already existing the additional ones experienced in making it necessary to put pupils in certain groups, the difficulties are greatly increased. I am not prepared to admit that after the plan has been in use for two or three years the program cannot be worked out, though I am certain it will have to be compromised for a time until some of the fundamental difficulties have been met and solved, which can be done only by actually putting it into operation as far as is possible.

*11. Teachers cannot differentiate the work to meet the requirements of the several groups.*—This criticism is not supported either by my experience or by that of Mr. Mitchell. The aim of the teacher is always to carry the group along as fast as it can go. The amount and quality of the work is determined by the group and the teacher. Groups rated as equal are certain to differ more or less, and no two teachers will handle the same groups with the same method. It is impossible to plan the course of study within such narrow limits as to prescribe what shall be accomplished by each group. The best that can be done is to set the minimum for passing, and say that the first groups will go as far beyond it as they are able and the others must at least complete it in order to earn promotion, the difference in the groups being indicated by the difference in methods required to bring them up to the standard, the slowest groups working in classes of smaller numbers.

Any teacher who is qualified at all to teach in a secondary school should be able to determine the caliber of the group he is teaching and govern his methods accordingly. Under any system of grouping there will be a difference in the quality of the groups. The law of chance will sometimes put a large majority of bright or dull pupils in one group. Every teacher of experience knows to how great an extent classes differ and how they have changed the character of the instruction and the government of the classes to meet the difference. In the Arlington plan this difference in groups is

in part controlled, and more than usual attention is given to the matter of the method of instruction for the various groups.

#### CONCLUSIONS

1. There is no more danger of overreaching on the part of pupils in the Arlington plan than in any other.
2. The danger of stagnation in the lowest groups is not inherent in the plan.
3. Dull pupils are not deprived of the contact with keener minds, but find the contact more stimulating under the Arlington plan, as there is less difference between the brightest and dullest of a group than there would be in a chance distribution.
4. The transfers of pupils during the school year are a source of disturbance to the school, but the advantages to be gained justify the inconvenience.
5. There is no tendency to discouragement on the part of pupils transferred to lower groups that is serious or permanent.
6. Pupils in lower groups are not inclined to underestimate themselves.
7. There is no evidence that it tends to establish a "caste" system among the pupils.
8. The groups are not so homogeneous that leaders are not developed. On the contrary, there is much competition for leadership, the chances of leadership are now more widely distributed, and the leaders have no chance of becoming arrogant, because there is so little difference between them and their classmates.
9. As the plan has operated in Arlington, there is no increase of expense due to a demand for extra teachers.
10. It is not impossible to put the plan on a working basis because of program conflicts, though it is difficult the first year or two. Some conflicts are inevitable, as in any program. The larger the school, however, the less the difficulty. Any part of the plan in operation is a gain over the *laissez faire* method. It is best put into operation by beginning with certain subjects, one or two at a time; e.g., mathematics and modern languages.

11. There is a problem in the differentiation necessary to meet the demands of the different groups. Teachers of the most efficient kind are necessary for the success of the Arlington plan.

12. The plan does act as a stimulus to the pupils, resulting in more intensive work than under another plan.

13. The homogeneity of the group results in a great saving of lost motion in the teaching, most, or all, of the instruction being within the capacities of the pupils of the group. It also tends to remove the temptation to concentrate the recitation among the brightest pupils in a class.

14. Fewer failures are the result of the Arlington plan.

15. The percentage of elimination is reduced by the Arlington plan.

16. Pupils improve at a more rapid rate under the Arlington plan.

17. The opportunities for discovering special abilities of pupils are increased.

18. The Arlington plan tends to bring parents into closer touch with the administrative office of the school.

19. The initiative of pupils, especially in the lowest groups, is increased.

20. No matter how homogeneous as to ability we make a group of secondary-school pupils, there will be enough variation within the group to meet all the demands claimed for group instruction. The more homogeneous we are able to make the groups, the greater is the efficiency possible in the instruction. As far as these factors go the Arlington plan is commendable. Its chief weakness lies in its mechanical difficulties, and this is a matter of degree. A complete program for every pupil with the plan working in every subject is, as far as I have been able to observe, an impossibility.

21. The extent to which this plan can be developed in any school will depend upon the size of the school, the pupil-teacher ratio, the variety of subjects offered, the number of classrooms, the length of time the plan has been in use, the ingenuity of the maker of the daily program, and the co-operation of the teachers.